VOLUME 3 - NO. 5 AUGUST 1995

The Low Band Monitor

Auto Restoration

The truly hard core low band enthusiast can work some quality DX during the month of August—if he turns on his radio.

There is quite a bit quality this month in our *Power Spots* on all of our favorite bands. I again thank the participants who were kind enough to share this information with this newsletter.

K1ZM continues to impress on 160 meters reporting "great signals" with **A45ZZ** on 1.833 mz. around 0110 UTC.

Your editor has made some serious strides in the clutch cable linkage and instrumentation wiring on the 356A and is off the air!

I have been saving myself for a big September!

Dayton Golf

The Dayton Hamvention™ will be held next year on May 17, 18 and 19. Would anyone like to consider a golf outing in the Dayton area on the Thursday morning (May 16) before the Hamvention™. I propose a 4-man Scramble Format. If we get sixteen participants (4 teams) we will try it! More details later if we get some interest. Yes—this is a completely insane idea!

In This Issue

- The CQWWDX Contest proposal for *Real Number QSO Points* is an pitiful attempt by the editor to fill pages during a very slow summer DX season. We would like to formally apologize to our East Coast readers and the CQWWDX Contest Committee for these shameful remarks—you guys are the best! Please let me work one European on 160 meters this year!
- Bob, **KK6EK** provides details on the upcoming *Easter Island DXpedition*. This huge multinational operation is one of the more ambitious activities in the history of the hobby.
- The *Expedition 160/80* portable antenna is introduced for the first time. This is a Gary Breed, **K9AY** professional design that is being tested in Namibia by Charlie, **KY0A**. We will run a number of pictures of the elegant antenna in the future, but have included assembly details and a brief overview in this issue.
- Charlie, **KY0A** sends us a post card showing the Luderitz harbor in Namibia. He operated from the lighthouse there in August to help evaluate the *Expedition 160/80* antenna.
- Bill, **W0ZV** recently worked **TF3DX** on 160 meters who was using a kite antenna. **TF3DX** was kind enough to share some of the details in the *Kite Option* feature.
- The *Low Band Monitor* DX season begins on September 1 and will end on March 31. The first stations to qualify for either 160 Meter WAC, 80 Meter 100 Countries or 40 Meter 150 Countries will receive a plaque to recognize their efforts. All others will receive a custom designed certificate. Send us your log data in any form that works for you—these awards are free to our subscribers. Good hunting this season! *Lance Johnson - Editor*

Low Band DX News

The following information should be useful to the serious low band DXer:

• MIQUELON - *The team of* ***K9GS, ND9O, N9AU*** *and* ***W9OP*** *will be active from Miquelon, FP, from Oct 25 to Oct 31. They plan CQWWDX operation on all bands including a well radialed Inverted-L for "top band". The contest call will be TO5M. Before and after the contest they will be using their home calls /FP. Send your QSL to K9GS* *(TNX:Top Band Reflector)*

• HEARD ISLAND *- Ralph,* ***K0IR*** *reports that John,* ***ON4UN*** *has also supplied the Heard Island DXpedition with a 80 and 160 meter antenna of his design. This antenna will also be needed to fight the extreme high winds present on the island. The Nov 12 - Dec 1 time frame still looks good. Contributions to this DXpedition may be sent to: Heard DXpedition, P.O. Box* ***563****, Waite Park, MN 56387.* CORRECTED P.O. BOX NUMBER *(TNX: K0IR)*

• LORD HOWE *- The team of* ***W6OTC, N4TQO, KE6FV*** *and* ***G0AZT*** *will activate Lord Howe Island from Sep 19 to Sep 26 with three complete 500 watt stations. All band operation is planned with the following calls: VK9LX - CW, VK9LZ - RTTY, VK9NM - SSB. QSL to Ed Schneider, P.O. Box 5194, Richland, CA 94805.* *(TNX: DX Reflector)*

• DXCC YEARBOOK *- The ARRL deadline for submitting DXCC endorsements that will appear in the Third Annual DXCC Yearbook is Friday, September 29. Your DXCC data must be in the ARRL's hands by this date to make the printers deadline for this important annual listing.* *(TNX: ARRL Letter)*

• ST. PAUL ISLAND REPORT *-* ***KW2P*** *reports that low band conditions were excellent from St. Paul Island during their late July early August DXpedition. High winds caused some problems, but they managed 160 meter QSO's with 154 stations during their stay. QSL to: WA4DAN, Murray Adams, 403 East 14th St., Greenville, NC 27858* *(TNX: DX Reflector)*

• NEPAL *- Roger Western,* ***G3SXW*** *will be in Nepal as 9N1/G3SXW Sept 12 - 21. Listen on 1.827, 3.507 and 7.007 mz. CW for his 100 watt signal. QSL to: Roger Western, 7 Field Close, Chessington, Surrey, KT9-2QD England* *(TNX: OHIO/PENN)*

• EASTER AND SAN FELIX UPDATE *- Initial plans for frequency coodination on 160 meters for the upcoming September* ***XR0Y*** *(Easter Is.) and* ***CE0Z*** *(San Felix Is.) operations are as follows:*

XR0Y *to transmit on 1.824.5 and receive on 1.835.*

CE0Z *to transmit on 1.821.5 and receive on 1.830.*

Personnel changes have Bill, ***W0ZV*** *and Dick,* ***W4ETO*** *off the DXpedition team due to last minute time conflicts. John,* ***W0UN*** *will join the operation.*

(TNX: Top Band Reflector)

The Kite Option

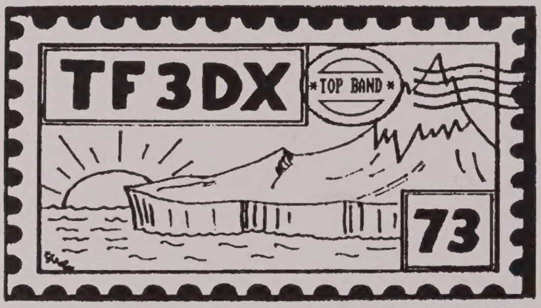
Some Shared Experiences - by TF3DX

Editor's note: A kite supported vertical is a fun alternative for 160 meter operators who do not have access to a tower. TF3DX shares some of his kite antenna experience in this letter that was originally sent to Bill, W0ZV. If you live in a breezy area (far away from power lines) you might give this antenna a try.

Antenna Design - I use an end fed half wave for high impedance (4-K ohms), thus needing no ground. If you prune the length exactly to resonance any small chassis of a rig or tuner is all the counterpoise you need, correct length being manifest by the insensitivity of any tuning indication (like SWR via the tuner) to the addition of an external ground.

I have found 39 meters to be quite good for 3.5 mz. CW. A small amount of extra ground makes the exact length rather uncritical as long as you have the facilities for tuning and you can also retune for say 3.8 mz. SSB. On 160 meters I have not as yet pruned the wire, but work with an 80 meter length of wire.

Extra ground in this respect may be nothing more than a few meters of wire laying on the ground, a poor ground stake or just touching the chassis with a bare hand—the impedance needs only to be low compared to 4-K ohms! The shield of a coax running to the rig from a tuner is quite a counterpoise by itself and you should leave the shield connected if you tune with the aid of some self-contained instrument at the tuner end.



THANKS: W0ZV

ONE OF THE RARE TF3DX 160 METER QSL'S MADE POSSIBLE BY A KITE ANTENNA

It is a good idea to provide a DC connection to real ground to drain off static that can otherwise give unpleasant jolts from such sky wires, with anything less than say 10-K ohm DC is sufficient! If you are worried about lightening, the more grounding at the tuner the better. I try not to take a risk if the weather does not seem safe.

The wire also serves as the launch line for the kite. I tie the end using short isolating thread to a fence post and place the tuner there and run about 30 meters of RG-219 to the shack. Once I found the correct taps and marked off capacitor settings, I can reset without any need for readjustment. My present tuner is a conventional L-circuit.

Wire Types - I use electric fence wire with three filaments interwoven with a synthetic fiber. Beware of types of wire using high resistance wires that have excellent broadband characteristics as dummy loads! My best fence wire has a DC resistance of 0.2 ohm/meter. Some types also produce a constant static while receiving when in a high wind environment.

I have found it necessary to inspect the whole length and solder any joints that may have been made at the reel change during manufacture.

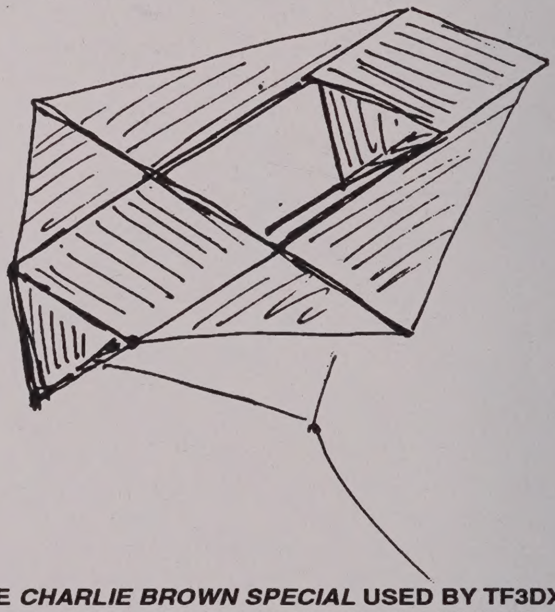
A somewhat heavier wire, but much stronger is one lead of the twisted pair for a field (combat) telephone. Even small kites can lift this wire in a favorable wind and it will handle higher power.

The best wire is the kind made during WW II for use with the "Gipsy Girl" 500 khz emergency transmitters carried by U.S. aircraft—a strong fabric filament with a sheath of light, but tightly woven copper braid. Replacement wire came on huge rolls I am told—if anyone finds any surplus let me know!

Kite Selection - The kite I am currently using and the best one I have ever tried is made by a company in England.

D.J. Ingledew
20 Embassy Road
Lower Swanwick, SOUTHHAMPTON
SO3 7DH Locks Heath - England

This company offered various kites suitable for antennas, but unfortunately this address is some ten years old. Once you find the correct bridle adjustments these kites can fly very well, giving some 60 degrees elevation in moderate wind.



THE *CHARLIE BROWN SPECIAL* USED BY TF3DX. THREE 121 CM. SPARS LENGTHWISE AND ONE 121 CM SPAR ACROSS FORM THE KITE STRUCTURE.

I feel that kites are a viable alternative antenna for a DXpedition as beach breeze is often stable for hours. No ground system and a current maximum high up speaks for itself. An inflated balloon to combat calm spells would certainly compliment the kite and I intend to obtain one in the future.

The problem with balloons is that high wind velocity will knock them down unless special (costly) aerodynamic shapes are selected.

Latest Launch - My last launch was during the CQWWCW. I had the kite up nicely during the start of the contest in a mounting gale, then after an hour and a half it was penetrated by a spar end and was grounded. See you this season!

The Expedition 160/80

A New Portable Antenna for 1.8, 3.5 and 3.8 Mhz. - by K9AY

Editor's note: DXpedition antennas for the low bands are an emerging amateur radio product category. Here's a look at a Gary Breed, K9AY, Crestone Engineering sanitary design called the ***Expedition 160/80*** *that was recently used in prototype version #3 from Namibia at V51HG. Look carefully at the clever assembly technique—you must use care when constructing antennas of this type.*

Introduction - The *Expedition 160/80* is a vertical antenna for the 160 and 75/80 meter amateur bands, in a knock-down form and transported in a 52"x14"x4" case. The antenna is designed to be tunable over the most often used portions of those bands.

Description - The antenna structure consists of approximately 16 feet of 1 - 1/2" aluminum tubing, 11 feet of 1 inch tubing and an 18 foot telescoping fiberglass pole with a tinned copper braid conductor routed inside. Overall height is 45 feet. Rope guys are attached at 16 and 27 feet. The upper guys include (4) 14 foot lengths of 3/32 inch stainless steel wire rope that provides capacitive loading.

The structure is self-resonant at approximately 3.8 mz. A small loading coil at the base is used for resonance at 3.5 mz. and a larger loading coil is included for 1.8 mz. Matching is accomplished with a shunt coil at the base, which also provides DC continuity to ground for static discharge.

A hairpin tuning slide is included at the base for fine frequency adjustment of 80 - 100 khz. in the 80 meter band and 30 - 40 khz. in the 160 meter band. In unusual circumstances additional tuning adjustments can be made by controlling the angle of "droop" of the upper capacitive loading guy wires.

It is recommended that the antenna be operated with a counterpoise system of at least 8 wires 70 feet in length. Four 27 foot wires are provided as combination radials and measuring lines to guy anchors.

If extensive 160 meter operation is anticipated, it may be useful to install at least two radials 135 feet in length, however, the value of the radials that are longer than the height of the vertical is relatively small. If 70 foot radials are not possible due to space restrictions, a larger number of radials is highly recommended to increase the efficiency of the counterpoise.

Variations in the local ground conductivity will affect the tuning and matching of this antenna. Be prepared for such possibilities!

Initial Assembly - The following steps outline the assembly of the Expedition 160/80 vertical antenna.

1. Locate the base plate at the desired location and drive in the anchor pin.
2. Attach the four 27 foot radial wires to the base plate and pull them to length.
3. Visually align the radials to 90 degree angles.
4. Drive the guy anchors at the ends of the radials.
5. Lay out the antenna where a 45 foot unobstructed length is available.
6. Assemble the slip together base and large diameter mast sections.
7. Continue with the smaller mast sections that have separate coupling sleeves.
8. Slide the guy ring over the first 1 inch mast section so it does not kink.
9. Make sure that the joints are pulled snug, then with one or two turns of tape to lock them in place.
10. Put the end clip of the braid inside the base of the pole, bend to make good contact if necessary.
11. Slide the pole base into the adapter.
12. Attach the lower guys to the three anchors. (The fourth will attach when the antenna is upright) Leave a 3 foot tail.
13. Attach wire rope sections to upper guy points using one carabinier for two guys.
14. Clamp the pigtails to the narrow part of the guy/pole adapter.
15. Attach the upper guy ropes to the ends of the wire section.
16. Tie the upper guy ropes to the anchors with about a 2 foot tail.

Erection - The erection procedure follows the initial assembly process.

1. Remove the base section and the next 1 - 1/2 inch diameter section from the bottom.
2. Lift the remainder of the antenna into a vertical position.
3. Then, let it lean beyond vertical held by the guys.
4. If the wind is calm tie the fourth guy anchor ropes leaving the same "tail" lengths of rope.
5. If windy, be sure the wind does not "whip" the anchor around—depends on wind direction and force. (A second person may be needed if wind conditions are gusty.)
6. Lift the mast and set it onto the remaining mast section.
7. Repeat for the base lading/tuning section.
8. Be sure the base section is set onto the base loading pin.
9. Adjust all eight guys for vertical, straight position on the antenna.

Final Assembly - Final assembly is outlined below.

1. Install the radial wires—be careful not to trip over them as they lie on the ground.
2. On one of the radial clamps, install the jumper to the base ground pin.
3. Install the short coax feedline to the base ground pin and the top of the matching coil.
4. Install the shorting bar as necessary for 75 or 80 meter operation, or leave off for 160 meter operation.
5. Install the hairpin tuner at the top of the base section and adjust for the desired center frequency.

NOTE - Re-check the security of the guy anchors and the tension of the guy ropes from time to time. The ropes should not be taut, they can be relatively loose for minimum stress on the antenna.

Tuning - This antenna has a moderate level of adjustability as described below.

1. Center frequency adjustment using the hairpin section covers about 80 to 100 khz. on 75/80 meters and 20 to 30 khz. on 160 meters.
2. If additional frequency adjustment is necessary, it can be

done by controlling the angle of the capacitive loading wires. To raise the frequency, anchor one or more of the wires closer to the antenna base. To lower the frequency, anchor it further away from the base, which may require some additional rope.

3. If low SWR is not achieved at the center frequency, first check the installation, especially the friction at the mast section joints. Then, connecting to a tap lower on the matching coil may work. It is not expected that this will be a problem, except in locations with extreme variations in ground conductivity, such as ice or salt water.

4. At the base, the shorting bar is used to select 75, 80 or 160 meter operation. The bar is removed for 160 meters—connect it to short out the loading coil for 80 meter operation and it is moved to also short out the small loading coil for 75 meters.

5. The antenna is quite broad on 75/80 meters. Exact center frequency may not be required to get an acceptable SWR at the chosen operating frequency.

6. Operation on the 160 meter band is also relatively broad for a vertical of this size.

General Notes - The following comments should be noted to achieve maximum performance from the *Expedition 160/80*.

1. Do not attempt to install this antenna in one piece! Remove the bottom two sections as instructed! At full length it is too easy to place excessive strain on the mast section joints. Removing two sections dramatically reduces the force required for erection.

2. Choose an installation on ground level, if possible, for simplest installation with the pre-measured guy points. This will also minimize tuning variations, since the antenna utilizes the capacitance between the loading wires and the radial system.

3. For airline transport, additional straps around the case are highly recommended.

4. Radial options—small gage wire, such as #20 or #22 is often available surplus at very low cost. A quantity of 16 - 24 radials of this size wire will provide acceptable efficiency and may be disposed of after use to reduce return shipment weight. Room is available in the shipping case to store this wire. Larger wire can of course be used, but it would require a separate shipping container due to the added bulk and weight.

Conclusion - For more information on the *Expedition 160/80*, contact: Crestone Engineering, 7318 S. Birch Street, Littleton, CO 80122.

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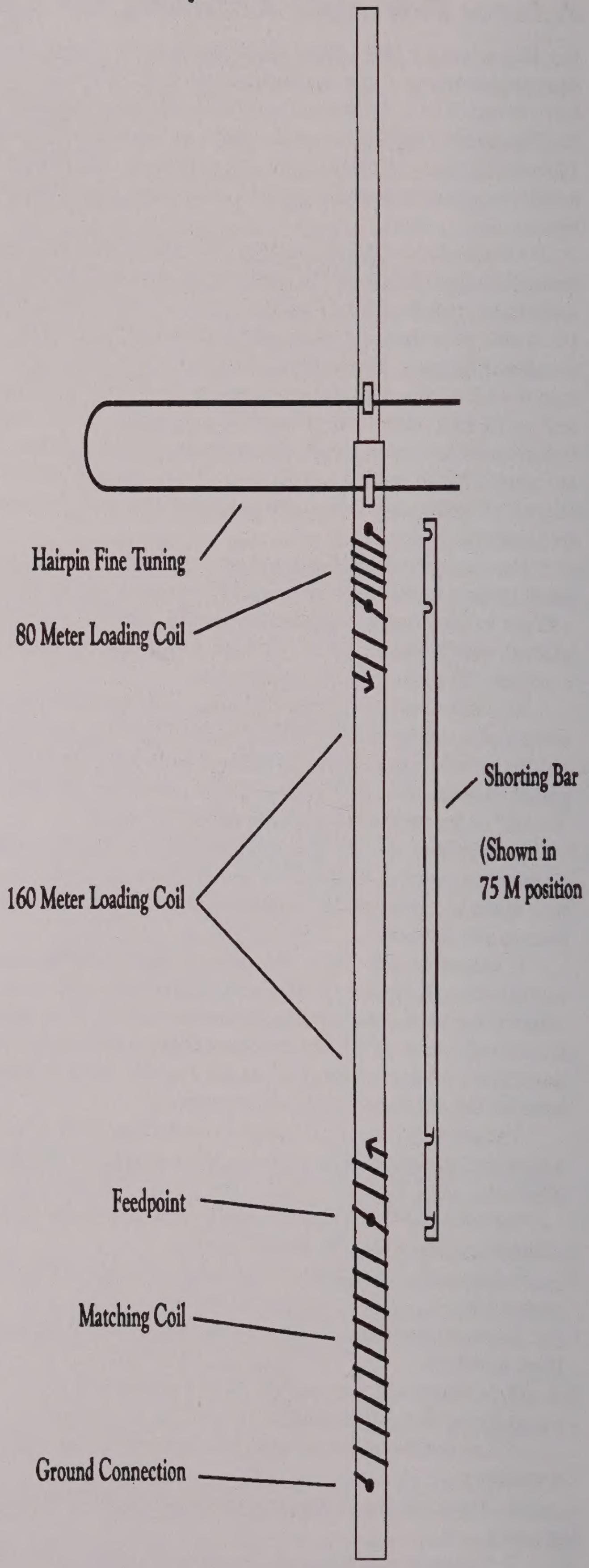
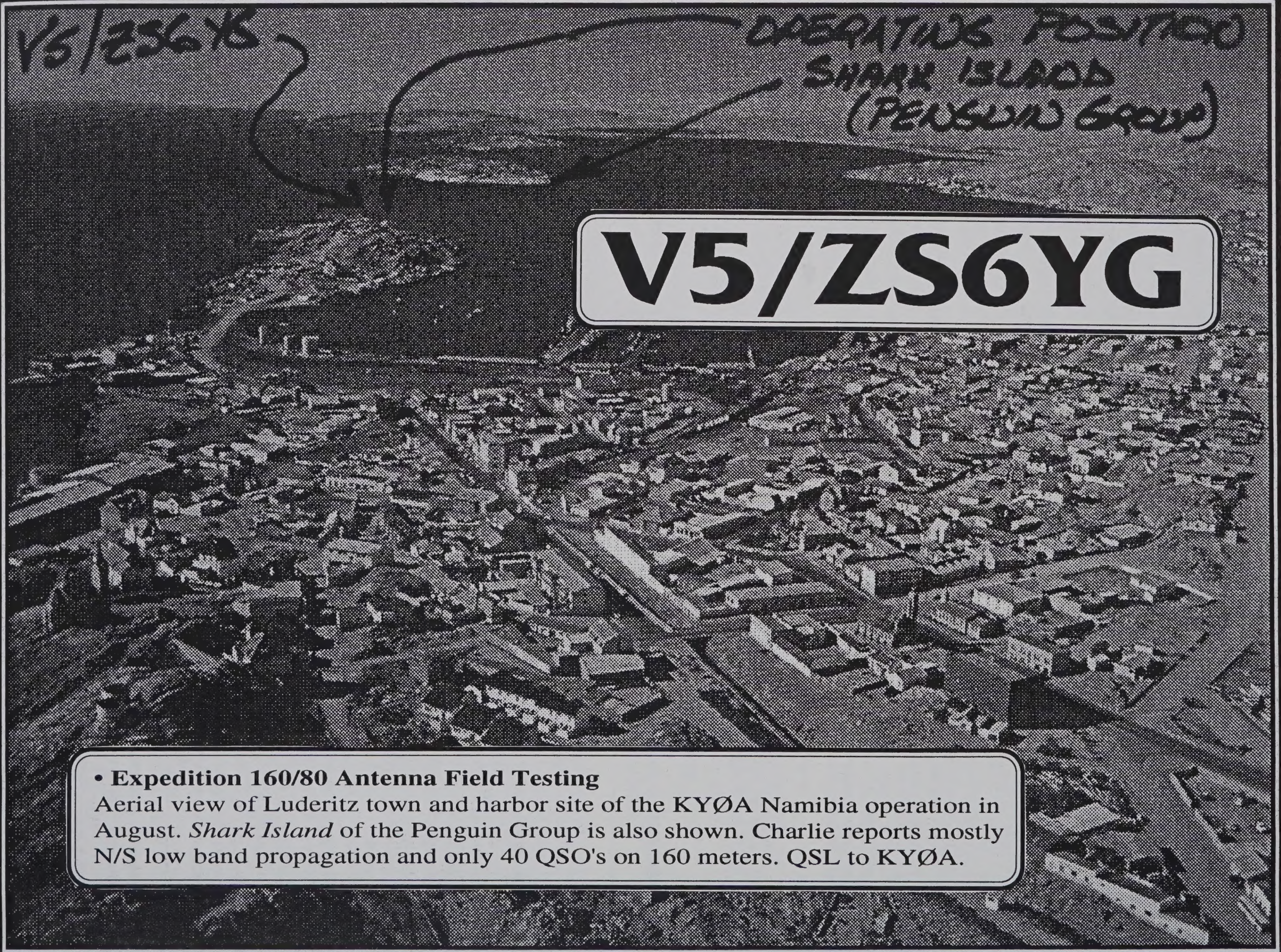
Base Section Detail of K9AY *Expedition 160/80*





• **Expedition 160/80 Antenna Field Testing**
Aerial view of Luderitz town and harbor site of the KY0A Namibia operation in August. *Shark Island* of the Penguin Group is also shown. Charlie reports mostly N/S low band propagation and only 40 QSO's on 160 meters. QSL to KY0A.

Easter Island - DXpedition Details

Establishing New DXpedition Standards - by KK6EK

Editor's note: Dr. Bob Schmieder, KK6EK and an impressive assortment of DX talent will be undertaking one of the most complex operations in the history of amateur radio when they travel to Easter Island, XR0Y this month.

Those of you that have Internet capability are in for a real treat as continuous updates about this provocative exercise will be available from the groups own reflector. This DXpedition will be one of the most talked about operations in a number of years—let's review the details.

OVERVIEW - We are pleased to announce final plans for the 1995 DXpedition to Easter Island and Salas y Gomez. The radio amateur callsigns will be XR0Y for EI and XR0Z for SyG.

The expedition is a multi-purpose, multidisciplinary project involving natural science, amateur radio, archaeology, and state-of-the-art computer-based communications. A major goal is to implement new techniques for using available high technology to enhance communications from remote sites.

The total crew for both teams is 32 (18 radio amateurs plus scientific divers and support), and includes persons from the US, Mexico, Netherlands, UK, Switzerland, Belgium, and Chile.

The expedition will be carried out by two separate teams operating simultaneously. One team will travel to Easter Island and establish a base camp and operations center on the north side of the island.

The SyG team will sail from Chile directly to Salas y Gomez, 225 miles to the east of Easter Island. They will be helicoptered on the island, and remain there for approximately 6 days, subsequently returning directly to Chile.

A variety of innovative computer-based communications techniques have been implemented for this DXpedition. It is planned to operate around the clock, using all bands and all communication modes legally allowed, including operations on 30 and 160 meters, 6 meter EME, slow-scan TV, RTTY and other digital modes, and a multiband HF beacon.

An Internet connection will enable daily uploading of log data, news, and other nformation to computers in the U.S. Radio logs, data and others news will be communicated to the central site, from where it will be distributed over Internet, FidoNet, PacketCluster, and other networks to various hubs, nodes, and individuals.

Services for amateur radio include a network of anchor stations to distribute information locally, QSL cards mailed the day after the first QSO, automatic e-mail confirmation of QSOs, a WWW site, public logs with a server for online confirmation, and an Internet reflector for EI/SyG.

The expedition will be documented in a book, video, and audio tape. The expedition is financed by contributions from participants, donors, and by the sale of souvenirs (coffee mugs, tee-shirts, photographs, etc.). Partial support has been provided by the radio, computer, communications, and travel industries.

This expedition will be conducted in full compliance with the laws and policies of the Republic of Chile. We will respect the local rules and customs of Easter Island, and abide by all rules governing Salas y Gomez.

TRAVEL SCHEDULE - This schedule was accurate as of August 26, 1995 and is subject to change if weather conditions dictate.

DATE	TRAVEL ACTIVITY
28 Aug	Salas y Gomez team leaves Valpariso
31 Aug	Advance party arrives Easter Island
1 Sept	EI beacon XR0Y/B on the air (thru 21 Sept.)
3 Sept	Main team arrives Easter Island
5 Sept	EI radio on the air as XR0Y (thru 19 Sept.)
6 Sept	SyG team arrives on SyG
7 Sept	SyG radio on the air as XR0Z (thru 11 Sept.)
10 Sept	Vessel arrives EI
12 Sept	SyG team leaves SyG
19 Sept	SyG team arrives Valpariso
22 Sept	EI team leaves EI

TEAM MEMBERS - An asterisk (*) before the individuals name indicates indicates a Salas y Gomez participant.

Dr. Robert W. Schmieder KK6EK
National Coordinator • Director - *Cordell Expeditions*
4295 Walnut Blvd.
Walnut Creek, California 94596 USA
tel: (510) 934-3735 (voice and fax)
email: cordell@ccnet.com

*** Dr. Carlos George-Nascimento NP4IW**
International Coordinator
2061 Magnolia Way
Walnut Creek, California 94596 USA
tel: 510) 601-2822 (office)
tel: (510) 655-8453 (fax)
tel: (510) 935-2768 (home)
email:carlos_george-nascimento@cc.chiron.com

•Bob Allphin-**K4UEE** •Max Bachi-**XE1XA** •Albert Boosman
•Craig Boyer-**AH9B** •John Brosnahan-**W0UN** •Luis Chartarifsky-**XE1L**
•Paul Daley -**WT8S** •Vincent Denecker-**G0LMX** •*Marcel Duhart
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•Wes Lamboley-**W8FMG** •Nellie Lazard-**XE1CI** •Joe Rich-**N1OCS**
•Jim Riff-**K9JSC** •Harry Sherman •Steve Smith •Martin Tosseyn
•Albert Zaehner-**HB9BCK**

EXPLORERS CLUB AND THOR - In 1947, the legendary Norwegian explorer Thor Heyerdahl carried a flag of the Explorers Club with him on the raft Kon Tiki. In 1955, Heyerdahl again carried the same flag on his archaeological expedition to Easter Island.

The flag can be seen in his book *AKU-AKU*. The 1995 Expedition to Easter Island will carry the same flag. Heyerdahl has sent a message to the expedition: "*It remains only to wish you and you companions all the best of luck in your planned expedition. My best regards to your entire group and not the least our Easter Island friends.*" - ***Thor Heyerdahl***

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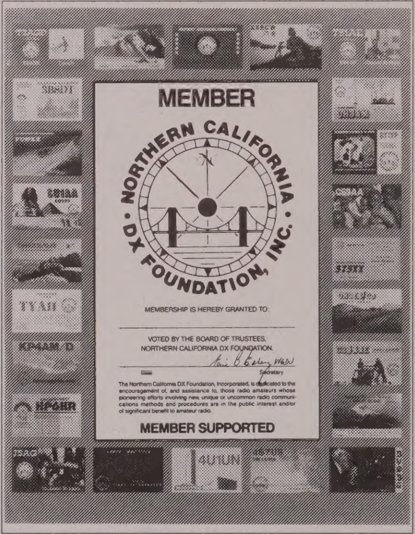

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Lance Johnson

P.O. Box 1048

ELIZABETH, CO **80107**

LOW BAND MONITOR

Power Spots By: ____________

FREQ	CALL	TIME	DATE	COMMENT

REMARKS:

SOUVENIRS - You can help support the EI/SyG expedition by purchasing one or more of our souvenirs. Each of these souvenirs is high quality. The mugs and tee-shirts are exactly the same as we are using on the expedition.

Please help us by buying one of these nifty items. To order, send check made out to *Cordell Expeditions*, c/o: **KK6EK**, 4295 Walnut Blvd., Walnut Creek, CA 94596.

Available Now:
* Mug ($15) * Tee-shirt ($15)

Available Oct. 1, 1995:
* Audio tape ($15) * Color prints (3 8x10) ($20)
* Color slides (20) ($20) *Rock from Easter Island ($10)

Available Early 1996:
* Book by KK6EK ($25) * Video ($25)

CALLSIGNS - The following call signs will be used: **XR0Y**, Easter Island and **XR0Z**, Salas y Gomez

RADIO SCHEDULE - This schedule stands as of Friday, August 25, 1995:

1-21 Sept	XR0Y/B Beacon QRV from Easter Island
5-20 Sept	XR0Y QRV from Easter Island
7-11 Sept	XR0Z QRV from Salas y Gomez

OPERATING FREQUENCIES - The DXpeditions will transmit on or near the following frequencies. The listening frequencies will be announced on the air.

Easter Island			Salas y Gomez		
CW	SSB	RTTY	CW	SSB	RTTY
1824.5	1845	-	-	-	-
3525	3795	3680	3540	3760	3590
7025	7065	7080	7040	7060	7090
10115	-	10108	10104	-	10104
14025	14195	14080	14040	14260	14090
18075	18145	18102	18080	18160	18109
21025	21295	21080	21040	21260	21090
24895	24945	-	24920	24960	-
28025	28495	28180	28040	28460	28190

- 6 Meters - 50.105 • SSTV 14.230 - Robot 72
- HF Satellite (RS-12) Tx:21.225/Rx:29.425
- UHF Satellite (AO-10,AO-13)
  435.505 up/145.890 dn B mode
- Beacon 14.100 Beacon sends callsign
  CW at 100 W,
- XR0Y/B 18.110 then a steady tone for:
  21.150 mz. 1.5 s at 100, 10, 1, and 0.1 W,
  24.930 mz. then moves to next higher frequency.
  28.200 mz. The cycle repeats once per minute.

REAL SIGNAL REPORTS PLEASE - We request exchange of real signal reports, rather than the normal "59" or "599" DXpedition report. This will slow the rates some, but we need the information to study propagation.

DUPING INVITED - We invite you to dupe the expeditions in order to help us study propagation, but please do it only on different band-days.

If there is a big pile-up, please be considerate of others who have not yet worked the DXpedition. We will be logging with a CT network, so we will know if you are a dupe.

E-MAIL-QSLs - For all logged QSOs, a "Congratulations" e-mail message will be sent to you automatically, if you are in the QRZ database maintained by Fred Lloyd **AA7BQ**. To add yourself to the database, either send an e-mail message To: **updates@qrz.com** Message: comqrz_update your_callsign your_email_address or log into the WWW site with the URL **http://www.qrz.com**

NEXT-DAY QSLS - For a station's first QSO with the expedition, a printed QSL card will be put in the U.S. mail to you within 24 hours after the QSO, if we can find a valid mailing address in the available callbook.

QSL MANAGER
Mary Ann Crider **WA3HUP**
2485 Lewisberry RD.
York Haven, PA 17370

THE QSL BARCODE - Your QSL card will contain a printed barcode which contains all the information about the QSO. It can be read by standard readers capable of handling Code-39 barcodes. The purpose of the barcode is to facilitate future processing by validating agencies such as the ARRL/DXCC.

INTERNET CONNECTION - We will have a fully functional node on the internet in our camp on Easter Island. However, the line belongs to NASA, hence we cannot release the IP-address directly. We have established an intermediary site at **ve7tcp.ampr.org**, courtesy of Lyndon Nerenberg, **VE7TCP**.

E-MAIL ADDRESS - You can pass comments directly to the expedition using the following IP address. We may or may not have the time to answer you directly. **easter@ve7tcp.ampr.org**

WWW PAGES - The expedition is presented in a series of pages on the World Wide Web. These show maps, lists of people, latest information about the expedition, etc. During the expedition the pages will be updated daily.

The URL for the site is **http://ve7tcp.ampr.org/DX/easter.**

REFLECTOR - We have established an Internet reflector for Easter Island/Salas y Gomez. This reflector is available for discussing any aspect of the islands and the expedition. Anyone who subscribes can read and post messages to all other subscribers. To subscribe, send an email message to:

To: **easter-island@the-courtyard.com.**
Subject: SUBSCRIBE <—
Note: Not in Message: area! Message: (leave blank)
To send any message - use:
To: **easter-island@the-courtyard.com.**
Subject: Your_title
Message: Your_message

PUBLIC RADIO LOGS - During the expedition, you can verify that you are in the radio log by logging into the WWW site (see above), and going to "Am I in the radio log?". There you will see a dialog box where you can enter any callsign. The server will respond with the log data, if it exists.

ANCHOR STATIONS - We have a group of stations who will act as "Anchors." They will receive and distribute information from the expedition (primarily through Internet), and pass information to us on the islands.

You are invited to pass comments to them for relay to us.

AA7MH	Shep Shepard	hsheps@primenet.com
EI7DNB	John Barry	jbarry@curia.ucc.ie
F6AJA	J.M. Duthilleul	duthilleul@eudil.eudil.univ-lille1.fr
G3OZF	Don Beattie	g3ozf@mayerin.demon.co.uk
G3XTT	Don Field	field@btq2ec.igw.bt.co.uks
G4BAH	Bob Carpenter	carpente@cartoon.bt.co.uk
G4DQW	John Krzymuski	john@radvan.demon.co.uk
KB2HUN	William Liporace	chef@helios.acm.rpi.edu
KE2LJ	Pat Masterson	bat@gdstech.grumman.com
KP4TR	Ramon Gonzalez	rgonzalez@pricopost.puertorico.attgis.com
N4OKX	Mark Williams	n4okx@iglou.com
OH2BU	Jari Jussila	jari.Jussila@oh2bu.pp.fi
ON1BEJ	Bert De Jonghe	bert@sophis.be
OZ8RO	Rag Otterstad	danmec@inet.uni-c.dk
V73C	Ken Wells	v73c@aloha.net
VE3UOL	David A. George	al434@freenet.carleton.ca
WA0PUJ	Glenn Johnson	grjohnson@vax1.bemidji.msus.edu
WN9JAT	Jerry Douglas	wn9jat@aol.com
XE1ZZA	Alonso Ulloa	alonso@itesocci.gdl.iteso.mx

Real Number QSO Points for CQWWDX

Should the QSO Scoring System Be Changed? - by K0CS

Editor's note: The CQWWDX Contest and the NCAA Division I College Football season have a lot in common. Both institutions have great traditions and are extremely popular, but fail to deliver a true bonafide national champion.

In college football the national champion is determined by ones ability to get votes in the writers or coaches poll at the end of the season. Usually two or three teams are undefeated at the end of the season who do not get to play each other due to a primitive post season bowl system that continually pits the wrong teams against one another.

The result is that in most years there is controversy over which remaining undefeated team is the true champion. Post season bowl selection committees have their own agendas that are geared to revenue and not the process of determining a champion.

The world's greatest amateur radio contest, the CQWWDX Contest, is also antiquated by today's standards because it in no way attempts to **accurately** *(the operating word) measure the best DX operating performance of it's participants.*

The concept of DXing is very simple to understand, DX by definition means distance. Today we live in a world geared to precision and speed in everything we do. Any system, including the CQWWDX Contest that is not up to today's higher standards is open to criticism. For example, I think that Fred, K3ZO actually won the 1994 CQWWDXSSB, not John, K1AR.

This article is a proposal that will attempt to scientifically change the rules of the CQWWDX Contest in a manner that will better measure true DX operating ability.

Background - Most radiosport enthusiasts know that in the U.S. the CQWWDX Contest has been dominated by stations in the East Coast in every category since the late 1940's. This domination is total in it's scope—this is a domination of awards and recognition that transcends all operating categories, all bands and all modes. Well engineered U.S. stations only a few hundred miles from the East Coast have virtually no chance to compete against a modest station situated on or near the East Coast.

CQWWDX Contest
U.S. Single Operator SSB Winners
1975 to 1994

CALLS	YEAR(S) WON
K1AR	94-93-92-91-85-84-81
WM5G	90
N2NT	89
KC1F	88-87
K2TR	86
AI6V	83
W1ZM	82-76
K7RI	80
N7DD	79
W4DR	78
W3WJD	77
W7RM	75

IF YOU LIKE SSB...

GO EAST YOUNG MAN!

Similar situations exist around the world such as a 2-point 8P9 station cannot compete against a 3-point PJ9 station, any station in Europe cannot compete against 4X4, etc., etc., etc.

Over the years most participants have graciously accepted these disparities because winning the CQWWDX Contest is certainly not everyone's only reason for participating in the event and no real technical scoring solution was viable. This class of "gentlemen contesters" like the eunuches, slaves and vagabonds from past cultures have quietly accepted their fate and remained transparent in the background, a true "underclass", lacking recognition, respect and more importantly hope of any kind.

CQWWDX Contest
U.S. Single Operator CW Winners
1975 to 1993

CALLS	YEAR(S) WON
K1KI	93
N4RJ	92
KM1H	91
K1CC	90
K3TUP	89
W1KM	88-86-83
K1EA	87
K1AR	86-82-80-79
N2LT	84
K1GQ	81
W3RJ	78
W3LPL	77-76-75

IF YOU LIKE CW...

GO EAST YOUNG MAN!

The CQ Contest Committee in recent years has made attempts to recognize "geographically compromised" participants by breaking the scores down in categories that attempt to identify superior efforts from a particular region, country or zone.

This years 1994 results even highlighted the top ten scores from very active "geographically compromised" zones, a very labor intensive process for the awards committee that really only adds salt to the wounds of the afflicted.

These efforts are obviously appreciated by the stations that are recognized, but this form of expanded recognition is more of a "band aid" than a true solution to a decades old problem—the QSO point value being set up as a pathetically flawed 1 - 2 - or 3 point integer.

QSO point integers have served the contest community well for decades and they have provided us all with a lot of good wholesome fun—but there has got to be a better way.

The Fatal Flaw - The basic concept of a DX contact is the distance traversed on a great circle path between the two stations.

In the U.S. a 3-point QSO is awarded to a station in Boston (dipole at 37 feet) who works a station in London 3,275 miles away. A station in Des Moines (Stacked KT-34XA's at 110 feet) who works the London station is also awarded 3-points for a 4,183 mile contact with the same station. A poor station in Los Angeles (Stacked wide spaced six element custom designed yagis at 150 feet) is awarded a 3-point QSO for making this same contact, 5,440 miles away.

One might argue that this is trivial, but lets look more closely at these three fairly routine 3-point QSO's.

If we apply some mileage consideration to these contacts we find that the stations in the Midwest and Western U.S. are making substantially better contacts for the same point value:

• Boston to London	3 PT	3,275 miles	
• Des Moines to London	3 PT	4,183 miles	(27.7 % farther)
• Los Angeles to London	3 PT	5,440 miles	(66.1 % farther)

This means that the station in Boston is being unfairly rewarded for DX contacts when compared to his Midwestern and Western U.S. competition for every contact made with Europe. This imbalance is compounded by the fact that well over fifty percent of the DX participants who operate in the CQWWDX Contest operate from the continent of Europe.

This is one of the sweetest deals you will get in any type of competitive event!

I will not bore you with the calculations, but using Denver, Colorado as an example, I have calculated about a 21.7 to 44.1 percent scoring disparity over the years for all DX worked when compared to a station in Boston. This variation is usually keyed on two factors, the availability of JA stations and the less obvious "over the pole" propagation factor for Northern Europe. The bottom line is that K0RF and N2IC/0 will lose to K1AR in a bad year by 3 million points. In a good year they will only lose by 1.5 million points, but come very close to the total DX miles K1AR accumulated during the event.

The East Coast operator is also in a way shortchanged in the current scoring scenario because the only legitimate operating approach one can take is to follow the simplistic, somewhat boring, strategy of working endless strings of European stations—there is simply no reason to attempt more provocative contacts over more interesting paths because there is no incremental benefit for doing so, with respect to QSO point value.

The same thing applies to DX stations working the U.S.—why hassle with 6th or 7th District stations—all parts of the U.S. count the same. This is a form of system induced mediocrity!

The winners of the CQWWDX Contest from the U.S. are typically not the best DXers—they are the operators who have mastered the ability to efficiently run strings of garden variety (usually Southern) European stations without falling asleep.

Efficient station design, finding multipliers, passing multipliers and opportunistic band change management are certainly part of a winning strategy, but if you want to win the CQWWDX Contest you better have lots of European runs—no improvements in any other areas will ever change this fact.

This situation, just like the usually meaningless Rose Bowl, has been tolerated by the contest participant for decades. Today there is no reason why the situation cannot be changed and in a manner that is attractive to all participants, including the sponsors.

DX Means Distance - The awarding of 1 - 2 or 3 point QSO integer values based on country origin is also outmoded. A U.S. station in Boston that works a station in Montreal, Canada (300 miles) is awarded 2 - QSO points, while a Boston station that works a Los Angeles station (3,000 miles) is awarded 0 - QSO points because both stations are in the same country. QSO points should always recognize the distance between the two stations, independent of country origin, because distance is the true essence of the DX contest activity, not country origin.

The current QSO scoring system was considered to be quite innovative in 1949—just like the single wing formation in football—these systems are now both outdated. A new QSO value system desperately needs to be adopted that accurately measures the actual distance of each and every contact made during the operating activity.

Real Number QSO Point Values - The best DX contact one can achieve during a DX Contest is an antipodal contact with another station at the opposite end of the earth. This is a known distance that is equal to (for discussion purposes) approximately 11,000 miles. This contact should represent the maximum possible point value that can be achieved during the contest equal to 3-QSO points.

A typical DX contact can be represented by a fraction that is based on the actual QSO distance divided by the base antipodal distance, such as in this London example:

Boston to London:
= 3,275 miles / 11,000 miles = .29772 x 3-QSO points
= 0.89318 QSO pts.

Des Moines to London:
= 4,183 miles / 11,000 miles =.38027 x 3-QSO points
= 1.2676 QSO pts.

Los Angeles to London:
= 5,440 miles / 11,000 miles = .49454 x 3-QSO points
= 1.4836 QSO pts.

Even the contacts within ones own country at a single mile could be assigned a point value that would add a sense of value to ones local effort as shown in the Minnesota example below.

Minneapolis to St. Paul:
= 1.000 miles / 11,000 miles = .00009 x 3-QSO points
= 0.00027 QSO pts.

One does not have to be very creative to see the expanded potential for new types of operating strategies—they simply boggle the mind!

In this scheme, using a QSO point value that is based on the distance between each station, an East Coast competitor that hopes to win must actually work some real DX relative to his competition and not just focus on stations directly across the Atlantic Ocean.

Think about this; Northern European stations would be more productive than Southern Europeans.

If you are in California, JA1 stations might even be more productive to work than say the JA8's—you get the idea!

Methodology - The methodology for making this Real Number QSO point system work assumes that the participating station is using a computer. We all know that not every contest participant uses a computer at this time, but I think it is a safe assumption to say that all competitors at a world class level are using a computer when they participate in the CQWWDX Contest.

Participation and recognition should not be limited to those people who own computers, but World Championships, Continental Championships and the U.S. Championship should only be recognized when the station submits a log on disk.

The days of submitting a 5,000 to 10,000 QSO hand written and hand duped log are thankfully over.

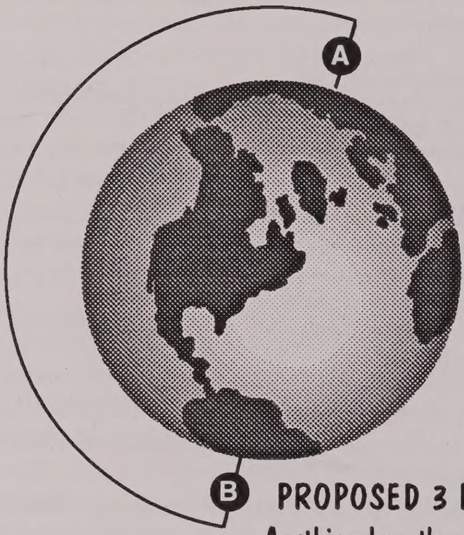
The actual mechanics are rather trivial as every QSO made in the contest would have the station prefix queried against a latitude and longitude coordinates database imbedded in the new CQWWDX Contest software.

This database would not be trivial as it would have to assign a latitude and longitude to not just every country of the world, but the districts for each country that has significant land area. Smaller countries would be represented by a single coordinate, larger countries (U.S., VK, UA, BY and etc.) would require a fairly large number of coordinates based on station districts.

The user would initialize the software with his own station latitude and longitude coordinates and the computer would simply calculate the distance using the algorithm commonly used for this purpose.

None of this methodology is new as DX logging software like DX Base™ and many others have been calculating distance, sunrise, sunset and similar information since the mid-1980's using primitive 286 AT architectures, 6-8 mz. clock speeds and DOS 3.0.

Today working systems like these are routinely selling at hamfests complete with a small hard drive and monochrome monitor for $50 - $100 or less. Today computer logging is not at all limited to the wealthy.



PROPOSED 3 POINT QSO
Anything less than this distance (Points A and B)is a Real Number 5 digit (X.XXXXXX) percentage of 3 Points!

What About Multipliers - The traditional geographic boundaries that define zones, countries and continents in the CQWWDX Contest should be left alone because they are still tied to cultural and political traditions today that may not be totally logical, but are indeed very real.

My personal opinion is that a Grid Square type concept for multipliers would take a lot of the flavor away from the event and would be a bit too confusing for the average participant to manage. Real Number QSO point value could be implemented easily and would be basically transparent.

Implementation - Only Alan Dorhoffer, K2EEK and Richard Ross, K2MGA, the principles of CQ Communications, Inc., can implement a change in the CQWWDX Contest of this magnitude.

Remember, a change of this type cannot be made by just implementing a rule change. You have to make the change with the necessary software tested and ready to be used by the participants.

CQ Communications Inc. would have to take a true visionary role in this effort—they would have to enter the software business or set up some sort of licensing arrangement with a software provider.

I wonder if some sort of satisfactory monetary incentive could be conceived that would perhaps entice them to consider this format? These men are not ultra-conservative, with Sweatshirts, T shirts, coffee mugs, umbrellas, caps and backpacks complimenting their publishing efforts.

Perhaps CQ could quietly get into the contest software business and maybe sell this software to a few of the 200,000 CQWWDX Contest participants if the payback was there. Let's imagine a two-year plan of attack that would enable them to launch the new software for the 1997 CQWWDX Contest:

1. Write the Code - CQ has access to every single ham radio software vendor in the industry. It would probably be advantageous to consider using a known entity like K1EA, N6TR, WJ2O or K8CC for writing the code, but I am sure many other candidates exist. Set minimum system requirements at IBM AT Clone and DOS 3.0 levels so that the "monetarily compromised" would not miss out. At a later date Macintosh™ and Windows 95™ versions could be considered for the power user types.

2. Product Testing - No field testing would be required as the CQ Contest Committee has hundreds of CT files and ASCII disks to use for beta testing. It would be interesting to take the top ten files from the last few CQWWDX Contests and re-score them using the new variable QSO software. I wonder if the standings would change? Would K3ZO finally get the recognition he deserves?

3. Product Introduction - Announce the product offering at least one year in advance of the first contest. Obviously a transition period would have to be established and poor Fred, K6SSS, would have to literally rewrite the all time records that use the new Real Number QSO format.

Additional product features could be added to the software, but it is obvious that terms like "The Official Logging Software for the CQWWDX Contest", would go a long way in moving the initial offering without the need for frills. My predicted first years worldwide sales at $69.95 are a modest 1,014 units. At $49.95, I see 3,188 being sold the first year. This assumes very modest promotion and distribution costs.

When you consider the usual long-term upgrade potential, this software product could possibly produce revenues equal to those of the T-Shirt component of CQ Communications, Inc. Can you imagine a CD ROM offering of the software with not only last years CQWWDX results, but pertinent logs included in the bundle?

Reality Check - Before we get too serious about a scoring change of this type occurring in the CQWWDX Contest it is safe to assume enlightened Real Number QSO point scoring that utilizes "modern" ($100.00 IBM 286 AT Clone) technology will not occur in the near future.

Most of the totally entrenched people who have established their reputations based on this obvious blatant scoring inequity would be against any changes that would perhaps dilute their achievements from the past. They would for the first time in decades be "exposed" and have to compete in a more balanced playing field. Most of these stations would still win their categories, they just wouldn't get the rush of winning by over a million points.

Wouldn't it be embarrassing after back scoring a group of old CQWWDX logs to find that stations like K0RF, W9RE, W0AIH, K4VX/0 and N2IC/0 had truly worked more DX (DX means distance) during the contest than the likes of W3LPL, KC1XX and K1AR who normally outscore their inland competition by 25 percent or more.

Wouldn't it be embarrassing to find that maybe W7RM was actually beating the efforts of K2GL or that the late W2PV was much overrated.

Wouldn't it be embarrassing to find that all of the Multi-Multi efforts from PJ1 and PJ9 from the past were actually outdone by operations from KP2, VP5 or J6.

Wouldn't it be embarrassing to find European DX stations in the CQWWDX Contest "listening for U.S. 5's, 6's, 7's and 0's only" because for the first time in their lives they are rewarded for their ability to work these weak stations that are typically 15-25 db down from their East Coast counterparts who are 1,000 to 3,000 miles closer.

A change like the one proposed here would simply hurt too many established ego's at a time when these ego's (typical DX contest participants are middle-age) are best left alone.

Conclusion - Should we let East Coast stations like K1AR, KC1XX and W3LPL continue to dominate the CQWWDX Contest forever with scores 20 to 50 percent higher than their Midwest and West Coast competition?

Should we continue to count a 3,000 mile contact over salt water for one group of people the same as a 6,000 mile contact over land for others?

Purists might argue....Why should we split hairs—the CQWWDX Contest is the best reported, best run contest in the world and has served the DX contest community with distinction for decades.

Why should we change it now?

My answer to this question is simple and fundamental. In a modern world no institution or system established over forty years ago like the CQWWDX Contest can be expected to deliver benefits to it's users that are equal to those that are possible with the implementation of ever improving technology.

The current scoring system for the CQWWDX Contest has basically eliminated true worldwide and U.S. competition from the activity for all but a few strategically located participants.

The current scoring system has created a "have and have not" type attitude that rewards mediocrity and simplistic operating strategies.

The start of the next solar cycle would be an opportune time to begin implementation of this long overdue change.

Editor's note: Wow—I finally wrote my critique of the CQWWDX Contest scoring system after talking about it for over a year. What a relief! I can now concentrate on revamping the welfare system, illegal drug usage and solving our illegal immigration problems with Mexico.

*Subscribers and DX contest enthusiasts that received sample copies, who agree or disagree with my proposal, are invited to contact the **Low Band Monitor** at P.O. Box 1047, Elizabeth, CO 80107, or by E-Mail at lance356@aol.com.*

*The **Low Band Monitor** would be glad to share your comments with our readers.*

Even if no changes in the CQWWDX Contest are adopted, this might be an enjoyable exercise—I feel better now!

Low Band Monitor

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160 METERS

1833.0	A45ZZ	19-Aug-1995	0110Z
1833.6	GW4VEQ	19-Aug-1995	0053Z
1829.4	DK7SU	18-Aug-1995	0251Z
1827.0	3D2PN	17-Aug-1995	1311Z
1833.0	A45ZZ	17-Aug-1995	0128Z
1833.0	SP5EWY	17-Aug-1995	0122Z
1826.7	3D2PN	15-Aug-1995	1317Z
1831.0	SM5BFJ	13-Aug-1995	0302Z
1831.0	SM5EFJ	13-Aug-1995	0305Z
1817.0	IK5CQV	12-Aug-1995	2357Z
1830.0	SM5BFJ	12-Aug-1995	0252Z
1832.0	VK3AX	11-Aug-1995	1248Z
1832.5	IV3PRK	11-Aug-1995	0320Z
1834.0	OK1DOT	11-Aug-1995	0254Z
1829.0	DK7SU	11-Aug-1995	0251Z
1830.2	SM6MCW	11-Aug-1995	0234Z
1839.3	LU2DVI	11-Aug-1995	0219Z
1832.6	IV3PRK	11-Aug-1995	0151Z
1831.6	ON7PQ	10-Aug-1995	0355Z
1827.4	SV8JE	10-Aug-1995	0341Z
1831.3	IV3PRK	10-Aug-1995	0314Z
1829.7	GI3OQR	10-Aug-1995	0052Z
1824.0	V5/ZS6YG	9-Aug-1995	0327Z
1841.5	UY5BA	9-Aug-1995	0241Z
1841.5	SP5INQ	9-Aug-1995	0239Z
1840.0	LU2DVI	9-Aug-1995	0233Z
1832.2	RW3PZ	9-Aug-1995	0146Z
1828.8	TF3DX	9-Aug-1995	0051Z
1828.0	G4DBN	9-Aug-1995	0032Z
1830.0	G3LNS	8-Aug-1995	0410Z
1805.0	UA9BA	7-Aug-1995	1432Z
1832.0	ZL2SQ	7-Aug-1995	0958Z
1848.0	CX2CB	6-Aug-1995	0954Z
1832.0	CX1TN	6-Aug-1995	0916Z
1831.0	SM5EDX	6-Aug-1995	0232Z
1833.0	UA2FF	6-Aug-1995	0226Z
1831.0	ZL4WA	2-Aug-1995	1020Z
1831.1	KH6AT	2-Aug-1995	1012Z
1848.0	P40CR	1-Aug-1995	0953Z
1830.3	KW2P/CY9	1-Aug-1995	0058Z
1845.0	GM3BQA	31-Jul-1995	0340Z
1831.0	GD/DL5LYM	31-Jul-1995	0329Z
1833.7	ON4ACG	31-Jul-1995	0309Z
1829.4	DK7SU	31-Jul-1995	0301Z
1827.0	SM5BFJ	31-Jul-1995	0158Z
1834.4	SM3HUA	31-Jul-1995	0111Z
1830.0	KW2P/CY9	31-Jul-1995	0109Z
1831.0	ZL2SQ	30-Jul-1995	1000Z
1848.0	CX2CB	30-Jul-1995	0959Z
1831.0	KW2P/CY9	30-Jul-1995	0331Z
1831.0	IV3PRK	30-Jul-1995	0227Z
1828.0	SM5EDX	30-Jul-1995	0204Z
1831.8	KW2P/CY9	30-Jul-1995	0200Z
1829.8	OZ1LXJ	30-Jul-1995	0201Z
1831.8	KW2P/CY9	30-Jul-1995	0200Z
1828.0	SM5EDX	30-Jul-1995	0142Z
1825.4	OK1EE/OD	29-Jul-1995	0229Z
1830.0	KW2P/CY9	29-Jul-1995	0134Z
1831.2	CY9/KW2P	28-Jul-1995	0140Z

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3794.0	LU1EYW	23-Aug-1995	0319Z
3799.0	LU1FA	21-Aug-1995	2351Z
3504.9	3D2PN	20-Aug-1995	1050Z
3504.0	3D2PN	20-Aug-1995	1025Z
3792.0	LU5ONX	20-Aug-1995	1013Z
3799.0	CX4CR	20-Aug-1995	1007Z
3795.2	8R1AK	20-Aug-1995	0925Z
3795.2	LX1UN	20-Aug-1995	0517Z
3799.0	CX4CR	19-Aug-1995	0621Z
3798.0	LY2ZZ	19-Aug-1995	0047Z
3793.2	OY1G	19-Aug-1995	0023Z
3507.7	T91EVC	17-Aug-1995	0006Z
3505.0	9Y4KB	16-Aug-1995	0429Z
3795.0	3W5FM	15-Aug-1995	1317Z
3507.9	UA9ORS/0	15-Aug-1995	1308Z

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3508.0	ZS2LD	15-Aug-1995	0125Z
3794.1	UU1JA	14-Aug-1995	0308Z
3799.0	P29AN	13-Aug-1995	1047Z
3509.8	HB0/DJ9CB	13-Aug-1995	0134Z
3799.1	CX4CR	12-Aug-1995	1004Z
3794.9	V5/ZS6YG	12-Aug-1995	0604Z
3511.0	UP2MDE	12-Aug-1995	0402Z
3796.1	FS5PL	11-Aug-1995	0140Z
3798.0	TI9JJP	10-Aug-1995	0624Z
3799.5	CT3FT	10-Aug-1995	0621Z
3506.6	V5/ZS6YG	9-Aug-1995	0447Z
3504.5	V5/ZS6YG	9-Aug-1995	0318Z
3795.0	HC1XL	8-Aug-1995	0934Z
3791.6	I8UDB	8-Aug-1995	0354Z
3511.9	T91EVC	8-Aug-1995	0340Z
3501.5	CP8XA	8-Aug-1995	0308Z
3518.5	LW9ETY	8-Aug-1995	0217Z
3794.9	ZP5MGR	7-Aug-1995	0422Z
3508.5	OM5TD	4-Aug-1995	0310Z
3503.5	GD/DL5LYM/P	1-Aug-1995	0045Z
3505.2	T91EVC	1-Aug-1995	0002Z
3514.2	T91EVC	31-Jul-1995	0333Z
3798.4	TK/DL7HZ	31-Jul-1995	0233Z
3523.1	UR3AX	31-Jul-1995	0213Z
3506.5	DL7HZ/TK	31-Jul-1995	0157Z
3799.0	GI0UJG	31-Jul-1995	0157Z
3799.0	ZW0JR	30-Jul-1995	0926Z
3790.0	AA4VK/CY9	30-Jul-1995	0600Z
3505.0	WA4DAN/CY9	30-Jul-1995	0447Z
3507.1	GW5LP/P	30-Jul-1995	0327Z
3502.5	GD/DL5LYM/P	30-Jul-1995	0314Z
3504.0	J7NET	30-Jul-1995	0052Z
3511.5	EJ1D	29-Jul-1995	2356Z
3507.0	KW2P/CY9	29-Jul-1995	0303Z
3504.6	OM5NZ	29-Jul-1995	0222Z
3789.0	CY9/AA4VK	29-Jul-1995	0157Z
3789.0	AA4VK/CY9	29-Jul-1995	0116Z
3505.7	KW2P/CY9	28-Jul-1995	0325Z
3790.0	AA4VK/CY9	28-Jul-1995	0110Z
3789.0	AA4VK/CY9	28-Jul-1995	0045Z
3508.2	KW2P/CY9	27-Jul-1995	0305Z
3795.1	KW2P/CY9	27-Jul-1995	0020Z
3793.0	JY74Z	26-Jul-1995	2145Z

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7015.0	TT8NU	28-Aug-1995	0503Z
7004.0	Z32XA	23-Aug-1995	0029Z
7002.4	3DA0ACA	22-Aug-1995	0447Z
7001.0	EU3FT	22-Aug-1995	0122Z
7005.2	ZS2LM	21-Aug-1995	1459Z
7002.9	BV7FF	21-Aug-1995	1353Z
7013.2	UA3YH/KC4	21-Aug-1995	0914Z
7001.0	9H3KE	21-Aug-1995	0023Z
7062.8	7X5JF	21-Aug-1995	0009Z
7006.8	UR0IW	20-Aug-1995	2334Z
7005.7	9V1ZG	20-Aug-1995	1417Z
7005.0	3W5FM	20-Aug-1995	1303Z
7000.8	9H3UP	20-Aug-1995	0438Z
7006.9	G3ZEM	20-Aug-1995	0433Z
7002.6	PY5BI	20-Aug-1995	0144Z
7011.2	YO3AWC	20-Aug-1995	0112Z
7007.0	EI0CZ	20-Aug-1995	0030Z
7006.0	OH0KMG	20-Aug-1995	0015Z
7008.1	3D2PN	19-Aug-1995	1324Z
7004.6	HS7BBG	19-Aug-1995	1311Z
7006.0	3W5FM	19-Aug-1995	1301Z
7000.2	SV2CUI	19-Aug-1995	0314Z
7003.0	LX1BJ	18-Aug-1995	0451Z
7007.0	T94EU	18-Aug-1995	0252Z
7005.6	A71EZ	17-Aug-1995	2347Z
7010.1	FO5PC	17-Aug-1995	1411Z
7004.7	DU1JS	17-Aug-1995	1350Z
7013.0	T99W	17-Aug-1995	0149Z
7009.4	ZC4C	16-Aug-1995	0250Z
7012.8	YO9YE	16-Aug-1995	0201Z
7005.1	3W5FM	15-Aug-1995	1305Z

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7007.0	3D2PN	15-Aug-1995	0942Z
7006.6	3B8CF	15-Aug-1995	0329Z
7008.0	VK9XI	14-Aug-1995	1452Z
7004.8	3D2PN	14-Aug-1995	1213Z
7007.5	ZC4C	13-Aug-1995	0202Z
7002.6	LY6M	13-Aug-1995	0109Z
7090.8	CN8TM	12-Aug-1995	2350Z
7010.0	5B4ADA/HH2	12-Aug-1995	0523Z
7022.0	LY6M	12-Aug-1995	0407Z
7010.0	UU5J	12-Aug-1995	0235Z
7029.0	HB0/DJ9CB	12-Aug-1995	0221Z
7012.9	7P8SR	11-Aug-1995	0243Z
7008.9	YO9YE	11-Aug-1995	0132Z
7010.2	YN1PR	11-Aug-1995	0123Z
7011.7	EW1WZ	10-Aug-1995	2345Z
7009.0	SV6CZQ	10-Aug-1995	2331Z
7005.0	S5/DJ6SI	10-Aug-1995	2234Z
7008.1	BV7FF	10-Aug-1995	1439Z
7008.3	DL5JT/HK0	10-Aug-1995	0515Z
7001.0	V5/ZS6YG	10-Aug-1995	0511Z
7006.9	OD5/SP7LSE	10-Aug-1995	0006Z
7065.1	Z31GX	9-Aug-1995	2212Z
7005.2	BV7FC	9-Aug-1995	1236Z
7007.1	ZK1PN	8-Aug-1995	1101Z
7006.5	OD5/OK1EE	8-Aug-1995	0349Z
7002.0	FY5YE	8-Aug-1995	0322Z
7006.0	OK1EE/OD5	8-Aug-1995	0321Z
7027.0	3B8CF	8-Aug-1995	0319Z
7001.4	V5/ZS6YG	8-Aug-1995	0254Z
7010.5	YO9YE	8-Aug-1995	0142Z
7003.2	V52/ZS6YG	7-Aug-1995	0435Z
7014.0	CE7LHG	7-Aug-1995	0422Z
7013.0	9H1AL	7-Aug-1995	0416Z
7002.1	7P8SR	7-Aug-1995	0356Z
7000.8	SP6WM	7-Aug-1995	0354Z
7003.5	V5/ZS6YG	7-Aug-1995	0330Z
7013.5	UR7GR	7-Aug-1995	0325Z
7003.4	V5/ZS6YG	7-Aug-1995	0302Z
7002.3	3Z4GHL	7-Aug-1995	0221Z
7083.0	C31LD	7-Aug-1995	0029Z
7008.0	EU3FT	6-Aug-1995	2343Z
7050.1	A45XJ	6-Aug-1995	2316Z
7003.9	TA2DS	6-Aug-1995	2144Z
7080.3	UD6LEC	6-Aug-1995	2057Z
7002.8	ZK1PN	6-Aug-1995	1056Z
7004.5	UA3YH/KC4	6-Aug-1995	1056Z
7053.5	IJ7/IK7VJX	5-Aug-1995	1439Z
7007.2	LY2BMX	5-Aug-1995	0105Z
7002.1	LY95DR	5-Aug-1995	0100Z
7000.5	HB0/AC4LN	5-Aug-1995	0044Z
7005.0	OH0/OH1NSJ	5-Aug-1995	0035Z
7002.0	HB0/AC4LN	4-Aug-1995	2354Z
7002.3	SV9DKA	4-Aug-1995	2338Z
7015.0	UA3YH/KC4	4-Aug-1995	1155Z
7001.0	ZK1PN	4-Aug-1995	0555Z
7005.0	OD5/SP7LSE	4-Aug-1995	0157Z
7006.0	RX3QFM	4-Aug-1995	0136Z
7003.9	HA3OD	4-Aug-1995	0136Z
7022.0	ZK1PN	3-Aug-1995	0823Z
7003.3	GM3POI	3-Aug-1995	0416Z
7007.0	CP6EB	3-Aug-1995	0305Z
7004.3	TU2XZ	3-Aug-1995	0243Z
7078.5	YO3AWC	2-Aug-1995	2344Z
7004.6	5A1A	2-Aug-1995	2013Z
7001.0	OK1EE/OD5	2-Aug-1995	2000Z
7003.6	ZK1PN	2-Aug-1995	1044Z
7002.3	GD0AVF	2-Aug-1995	0534Z
7002.4	D2KWN	2-Aug-1995	0529Z
7068.0	SV1EV	2-Aug-1995	0434Z
7088.0	AA1BU/KP2	2-Aug-1995	0418Z
7003.0	DK5JT/HK0	2-Aug-1995	0327Z
7001.2	OK1EE/OD5	2-Aug-1995	0223Z
7001.0	OK1EE/OD5	2-Aug-1995	0228Z
7001.0	ZP6CW	2-Aug-1995	0225Z
7005.1	OK1EE/OD5	2-Aug-1995	0210Z
7012.3	KW2P/CY9	1-Aug-1995	0959Z
7012.8	ZK1PN	1-Aug-1995	0943Z